# TITLE

# DOUBLE LAMP UTILITY LIGHT

## BACKGROUND OF THE INVENTION

The present invention relates generally to illumination devices and, in particular, to a novel double lamp utility light.

Portable lights, which can be manually moved and suspended about a work site to aid a user to obtain the best lighting conditions, are well known. It has been the practice to use incandescent light bulbs, suitably encased in light guards, for this purpose. Such lights are often referred to as trouble lamps, extension lights, work lights, inspection lights, utility lights, and the like, and are commonly employed by mechanics and other workers who require a concentration of light while frequently changing locations. Such a trouble light is shown in the U.S. Pat. No. 4,774,647 to Kovacik et al.

Fluorescent lights have several advantages in use as compared with the incandescent bulbs. As an example, for the same wattage fluorescent lights usually provide more light with less glare. In the past, attempts have been made to convert portable lights such as extension lights to fluorescent tubes. However, a number of problems have arisen, particularly in attempting to adapt a fluorescent tube to a satisfactory portable assembly, including electrical contact problems with the tubes, and problems arising when the tubes need replacement.

The U.S. Pat. No. 4,262,327 shows a portable fluorescent tube having a lens and a hook for hanging the assembly. The assembly includes a tubular envelope surrounding a standard fluorescent tube and closed by a pair of end sockets. One of the end sockets has a starter switch mounted thereon and a ballast is connected in an electrical supply line near an electrical plug. However, in order to change the fluorescent tube, such a light assembly must be disassembled.

Many prior art portable fluorescent tube assemblies require the use of tools to disassemble the light assembly in order to replace the fluorescent tubes. Portable light assemblies are also notoriously and disadvantageously susceptible to tube breakage, primarily because portable light assemblies are much more likely to be handled roughly,

dropped or, at a minimum, subject to jarring, vibration, and the like. In addition, utility lights typically provide a fixed amount of illumination once energized. Those skilled in the art will appreciate that the same amount of illumination is not in required for every work location. Those skilled in the art will also realize that because of the frequently changing location of the utility light, finding a location for hanging and correctly orienting the light is often difficult.

The art continues to seek improvements. It is desirable to provide a portable light assembly that does not require the use of tools to change the fluorescent bulbs. It is also desirable to provide a utility light that is able to vary the amount of illumination it provides and is resistant to tube breakage.

It is desirable to provide a portable light with multiple suspension options in order to be able to place and orient the portable light in as many locations and positions as possible. It is always desirable to provide utility lamps that are lightweight and cost-effective to produce.

It is an object of the invention, therefore, to provide a utility light with a means to vary the amount of illumination that also may be disassembled and assembled by hand to replace the fluorescent tubes. It is another object of the invention to provide a lightweight, cost-effective utility lamp with multiple suspension options that is resistant to tube breakage.

## SUMMARY OF THE INVENTION

The present invention concerns a double lamp utility light. The utility light includes a vertically split light housing with an upper light portion extending from a generally hollow lower handle portion, the light portion having a lens opening formed thereon. Upper and lower hooks for hanging the utility light are attached to the light housing.

A power cord with a strain relief means is received in a bottom surface of the handle portion. The power cord is used to provide power to the utility light from an electrical cord extending from a common electrical outlet. An integral outlet is also received in a bottom surface of the handle portion, and is electrically connected to the power cord. The cord set also provides power to a circuit board means.

The circuit board means is received in the hollow handle portion of the light housing. The circuit board means includes a ballast and is used to provide power to the remainder of the electrical circuit.

A double switch is mounted on the handle portion and is electrically connected to the circuit board means. The switch supplies power from the circuit board means to a double fluorescent lamp socket. The lamp socket is electrically connected to the double switch to independently switch two double lamp assemblies. Each lamp assembly includes a base member that receives two tubular fluorescent bulbs.

The lens opening of the light portion of the light housing receives the lamp assemblies and a reflector. A lens assembly is releasably attached to the light housing and encloses the lens opening. A lamp cushion receives the fluorescent bulbs and contacts an interior surface of the attached light portion and lens assembly. A housing cushion receives a top portion of the assembled light portion and lens assembly. A handle cushion is received in a channel formed in the handle portion of the housing.

## DESCRIPTION OF THE DRAWINGS

The above, as well as other advantages of the present invention, will become readily apparent to those skilled in the art from the following detailed description of a preferred embodiment when considered in the light of the accompanying drawings in which:

Fig. 1 is an exploded perspective view of a utility light in accordance with the present invention;

Fig. 2 is a perspective view of the utility light shown in Fig. 1 as assembled;

Fig. 3 is a bottom plan view of the utility light shown in Fig. 2;

Fig. 4 is a top plan view of a utility light shown in Fig. 2;

Fig. 5 is a right side elevation view of the utility light shown in Fig.2;

Fig. 6 is a rear elevation view of the utility light shown in Fig. 2;

Fig. 7 is an enlarged fragmentary cross-sectional view as if taken along the line 7-7 in Fig. 5;

Fig. 8 is an enlarged fragmentary cross-sectional view as if taken along the line 8-8 in Fig. 5; and

Fig. 9 is an electrical schematic diagram of the utility light shown in Fig. 2.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to all of the drawing figures, a double lamp utility light is indicated generally at **10**. The utility light **10** includes a vertically split hollow light housing **12** formed in two housing halves **11** and **11'** with an elongated upper light portion **14** extending from a hollow lower handle portion **16**. The handle portion **16** is preferably ergonomically curved to allow the utility light **10** to be easily manipulated during use. The housing **12** is preferably formed of a lightweight material, such as plastic, as the utility light **10** is contemplated to be both handheld and portable.

Each half **11** and **11'** of the split housing **12** includes an outwardly extending half upper socket **18** for receiving an upper hook **20** and an outwardly extending half lower socket **22** for receiving a lower hook **20'**. The upper **20** and lower **20'** hooks are substantially identical and include ball portions **24** and **24'** respectively that are connected to shanks **26** and **26'** respectively, which are further connected to the hook members **20** and **20'** respectively. The ball portions **24** and **24'** are retained between the halves of the respective sockets **18** and **20**, forming a pair of ball and socket connections. When the halves **11** and **11'** of the split housing **12** are joined, recesses formed in facing surfaces of the halves of the sockets **18** and **20** receive the ball portions **24** and **24'** respectively. The facing are spaced apart to define channels **28** and **28'** that function as a guide for the shank portions **26** and **26'** respectively to allow the hooks **20** and **20'** to pivot only in a generally vertical plane as shown by arrows **30** and **30'**. Two pairs of walls **32** and **32'** extend outwardly from a rear surface **34** of the housing **12** with each wall **32** and **32'** adjacent one of the sockets **18** and **22** to function as storage supports on either side of the shanks **26** and **26'** of the hooks **20** and **20'**. The hooks **20** and **20'**, once moved beyond the projections **32** and **32'**, are free to rotate about a longitudinal axis of the utility light as shown by arrows **36** and **36'**. A plurality of transverse strengthening ribs **38** extend between the sockets **18** and **22** and the housing **12**. Preferably, the upper hook **20** is of a larger size than the lower hook **20'**.

A power cord **40** extends through an aperture (not shown) in a bottom surface **42** of the handle portion **16** and is used to provide power to the circuitry, discussed below, that is

enclosed within the handle portion **16**. A split member strain relief means **44** is attached to the power cord **40**. The diameter of the strain relief means **44** gradually tapers radially outwardly to a pair spaced radial projections **46** that cooperate with a wall **48** of the bottom surface **42** to retain the power cord **40** in place should the power cord **40** be pulled outwardly from the bottom surface **42**, in order that the projections **46** absorb any forces so that the electrical connections with the circuitry may be maintained. The end of the power cord **40** has a male plug (not shown) for insertion into a common female electrical power receptacle. An integral electrical outlet **50** is provided in another aperture in the bottom surface **42**. The outlet **50** is preferably a standard female three-prong grounded electrical outlet and is electrically connected (not shown) to the power cord **40** so that the outlet **50** is energized when the power cord **40** is energized. The outlet **50** can be utilized, for example, to receive an electrical plug at the end of a power cord for an electrically powered tool (not shown) or another light fixture (not shown).

A circuit board assembly **52** is received in an interior recess **54** in the hollow handle portion **16**. The recess **54** is bounded by a plurality of ribs **56** that aid in both aligning the circuit board assembly **52** in the handle portion **16** and in preventing movement of the circuit board assembly **52** once mounted in the recess **54** and the housing halves **11** and **11'** are joined. The circuit board assembly **52** includes a ballast for the utility light **10**. A plurality of slots **55** are formed in a side wall of each half of the handle portion **16** to provide air circulation and release heat generated by the circuit board assembly **52**. The circuit board assembly **52** is electrically connected to the power cord **40**, and is preferably a commercially available circuit board. The circuit board assembly **52** provides power to the remainder of the electrical circuitry enclosed within the handle portion **16**.

A double switch **57** includes a switch housing **58** with two switch rockers **60** each associated with a separate first electrical terminal **62** and a separate second electrical terminal **64** extending downwardly from a bottom surface of the housing **58**. A downwardly projecting planar divider **66** separates the terminals **62** and **64** of each switch rockers **60**. The switch housing **58** includes a lip **68** that extends around an upper surface **70** of the double switch **57** so that the double switch **57** may be mounted coplanar with the rear surface **34** of the housing **12**. The first electrical terminal **62** of each switch is electrically connected to the circuit board

assembly **52**, while the second electrical terminal **64** of each switch is electrically connected to an electrical terminal **76** of a lamp socket **73**. The double switch **57** is easily actuated by a thumb or finger of a person (not shown) holding the handle portion **16** to light one or both of the lamp assemblies **88** and **90** with one hand while also orienting and hanging the light **10** with the same hand. A pair of outwardly extending walls **78** form a channel **80** on the rear surface **34** of the housing **12** in which channel the switch **57** is located to help prevent accidental actuation of either of the switch rockers **60**.

The lamp socket **73** includes a generally disk-shaped socket housing **74** having two sockets **84** and **86** formed therein each for receiving a fluorescent lamp assembly **88** or **90**. The plurality of electrical terminals **76** that extend downwardly from a bottom surface of the socket housing **74** from each of the sockets **84** and **86** are electrically connected to the respective second electrical terminals **64** of the switch member **60**, each of the sockets **84** and **86** and switch members **60** forming a separate electrical circuit. The socket housing **74** is slidingly received in a cavity **94** at an upper end of the handle portion **16** formed by two longitudinally spaced parallel ribs **96**. The ribs **96** aid in aligning the socket housing **74** and in preventing movement of the socket **73** during use of the utility light **10**. The lamp socket **73** is preferably a commercially available socket.

The sockets **84** and **86** each receive one of a corresponding two sets of fluorescent lamp assemblies **88** and **90**. Each lamp assembly **88** and **90** is substantially identical and may be received by either socket **84** and **86**. Each lamp assembly **88** and **90** includes two fluorescent bulbs **98** and that are received by a base **91** having a plurality of electrical contacts **93** that cooperate with interior electrical contacts (not shown) in the sockets **84** and **86**. The base **91** includes internal electrical contacts (not shown) for the bulbs **98**. If a bulb **98** fails, the lamp assemblies **88** and **90** are replaced as an assembly; the individual bulbs **98** are not replaced. When either of the switch members **60** are activated, power is sent to the associated socket **84** or **86** and thus to the associated lamp assembly **88** or **90,** each of the lamp assemblies, the sockets and the switch forming a separate electrical circuit. A reflector **100** for directing the illumination towards a work area (not shown) and away from the light portion **14** is attached on a posterior side of the lamp assemblies **88** and **90**, and cooperates with notches (not shown) on an interior surface of the light portion **14**.

The upper light portion **14** of the light housing **12** is generally arcuate in cross-section and the halves of the upper light portion **14** are joined at a seam **72** on the rear surface **34** of the housing **12**. Each half of the light portion **14** is open at a front side and top of the light for receiving the lamp assemblies **88** and **90** and reflector **100** during assembly. A downwardly opening groove **102** is formed in a top area of the light portion **14** at an upper periphery of the opening. Each side area of the light portion **14** terminates in a flange **103** at a side periphery of the opening. An upwardly opening groove **104** is formed in lower area of the light portion **14** at a bottom periphery of the opening. A lens assembly **106** is generally arcuate in cross-section with a tongue **107** extending downwardly from a lower edge and a plurality of tabs **108** extending from side edges. A generally horizontally extending arm **109** is formed at an upper wall area of the lens assembly **106**. The arm **109** has an upwardly extending tongue **105** formed at a free end thereof. A plurality of cutouts **110** are formed in the flange **103** and are spaced to correspond to the tabs **108**.

To attach the lens assembly **106** to the light portion **14**, the lower end of the lens assembly is placed in the light portion opening with the lower tongue **107** inserted into the lower groove **104**. The arm **109** is depressed while moving the upper end of the lens assembly **106** into the opening and then the arm **109** is released to permit the upper tongue to engage the upper groove **102**. Now the lens assembly **106** is releasably attached to the light housing **12**. As best shown in Fig. 7, the flanges **103** cooperate with flanges **111** formed at side edges of the lens assembly **106** to seal the mating edges. As best shown in the Fig. 8, the tabs **108** extend beyond the flanges **111** into the corresponding cutouts **110** to cooperate with the wall of the light portion **14**. Thus, the flange **103** prevents the lens assembly **106** from flexing radially outwardly while the tabs **108** prevent flexation of the lens assembly **106** radially inwardly.

A generally disk-shaped lamp cushion **112** includes four apertures **114** for receiving a top portion of the bulbs **98** of the lamp assemblies **88** and **90**. The lamp cushion **112** is preferably press-fit over the bulbs **98** and rests under the finger **107**. The lamp cushion **112** has a plurality of vertically extending fins **118** formed thereon. The inwardly projecting finger **107** from the lens assembly **106** aids in retaining the lamp cushion **112** in place after the lens assembly **106** and the light portion **12** have been assembled. The lamp cushion **112** is preferably constructed of a deformable, resilient shock absorbing material.

A generally disk-shaped housing cushion **120** is received by a top portion **122** of the assembled lens assembly **106** and light portion **16**. The housing cushion **120** includes a plurality of external fins **124** and absorbs shock forces encountered during use of the utility lamp **10**. The housing cushion **120** is preferably press fit over the top portion **122**. The housing cushion **120** is preferably constructed of a deformable, resilient shock absorbing material. A central aperture or opening **126** is formed in the cushion **120** for access to the arm **109**.

An elongated handle cushion **128** is received in a channel (not shown) on a front surface **130** of the light housing **12**. The channel is preferably formed on a seam (not shown) formed between the halves of the handle portion **16**. The handle cushion **128** includes projections **134** on a back surface **135** that are press fit into recesses (not shown) in the channel for retaining the handle cushion **128** to the handle portion **16**. The handle cushion **128** includes ergonomically shaped ridges **136** on a front surface **138** to engage, with minimum discomfort, the fingers of a person (not shown) using the lamp. The handle cushion **128** is preferably constructed of a soft, easily deflectable material.

The split halves **11** and **11'** of the light housing **12** are joined by a plurality of fasteners such as screws (not shown) to complete the assembly of the halves of the housing **12**. The screws are received in apertures **142** formed in the half **11'** of the housing **12**, and fastened to corresponding tapped cylindrical posts **144** formed in an interior wall in the half **11** of the housing **12**.

After the utility light **10** has been assembled with the screws, it is ready for use. To replace a lamp assembly **88** or **90**, one must simply remove the housing cushion **120**, detach the lens assembly **106**, remove the lamp cushion **112**, and remove the lamp assembly **88** or **90** from the socket **73**. After a new lamp assembly **88** or **90** has been inserted in the socket **73**, the above steps are reversed. All of the above steps may be advantageously performed by hand, without the use of tools. Downward force applied to the arm **109** releases the upper tongue **105** from the groove **104**. Contacting an opposed pair of the tabs **108** with a thumb and finger enables one to pull the lens assembly **106** away from the opening in the light portion **14**.

An electrical schematic of the utility light **10** is shown in Fig. 9. The cord **40** is provided for connection to an external power source which connection will render the outlet **50**

"live. The electrical power from the cord **40** is directed through the ballast **52** to one of the switches **57** which switches individually control the lamp assemblies **88** and **90**.

In accordance with the provisions of the patent statutes, the present invention has been described in what is considered to represent its preferred embodiment. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.